

What is claimed is:

1. A method of manufacturing a semiconductor device comprising a step of mounting a semiconductor chip on a wiring
5 substrate having a base substrate on which are formed interconnecting lines,

wherein while melting the base substrate, bumps provided to the semiconductor chip are pressed in, and the bumps are electrically connected to the interconnecting lines.

10 2. The method of manufacturing a semiconductor device as defined in claim 1,

wherein the interconnecting lines comprise connecting portions electrically connecting with the bumps, and

15 wherein in the step of electrical connection, the base substrate is melted, and the bumps and the connecting portions are sealed with the melted material of the base substrate.

20 3. The method of manufacturing a semiconductor device as defined in claim 1,

wherein in the step of electrical connection, the base substrate is melted, and the melted material of the base substrate is adhered closely to a surface of the semiconductor chip.

25 4. The method of manufacturing a semiconductor device as defined in claim 1,

wherein in the step of electrical connection, the base substrate is melted by heat.

5. The method of manufacturing a semiconductor device as
5 defined in claim 1,

wherein a thermoplastic resin is used as the base substrate.

6. The method of manufacturing a semiconductor device as
10 defined in claim 1,

wherein in the step of electrical connection, the semiconductor chip is held by a jig, heat is applied to the jig to heat at least the bumps of the semiconductor chip, and the jig is pressed in the direction of the base substrate, whereby
15 the bumps are pressed into the base substrate.

7. The method of manufacturing a semiconductor device as defined in claim 1, further comprising:

a step of mounting another semiconductor chip on the
20 wiring substrate.

8. A semiconductor device manufactured by the manufacturing method as defined in claim 1.

25 9. A semiconductor device comprising:

a semiconductor chip having electrodes on which bumps are formed; and

a wiring substrate on which the semiconductor chip is mounted, and having a base substrate on which are formed interconnecting lines having connecting portions electrically connecting to the bumps,

5 wherein the bumps are embedded in the base substrate and electrically connected to the interconnecting lines; and

 wherein the bumps and the connecting portions are sealed by the base substrate.

10 10. The semiconductor device as defined in claim 9,
 wherein the base substrate is adhered closely to a surface of the semiconductor chip.

15 11. The semiconductor device as defined in claim 9,
 wherein the base substrate is a thermoplastic resin.

12. The semiconductor device as defined in claim 9, further comprising:

20 another semiconductor chip mounted on the wiring substrate.

13. A circuit board on which the semiconductor device as defined in claim 8 is mounted.

25 14. A circuit board on which the semiconductor device as defined in claim 9 is mounted.

15. An electronic instrument comprising the semiconductor device as defined in claim 8.

16. An electronic instrument comprising the semiconductor
5 device as defined in claim 9.

Patent 5074860